

**Youngstown City Schools  
Grade 8 Science Pacing Guide  
Grading Period 1**

Strand/Topic/ Content Statement	Duration	Clear Learning Targets	Curriculum Resources	Vocabulary/Concepts
<p style="text-align: center;"><b>SCIENCE INQUIRY AND APPLICATION PRACTICES</b></p> <p style="text-align: center;"><b>Thinking Like a 21<sup>st</sup> Century Scientist</b></p>	<p style="text-align: center;">Weeks 1-3</p>	<p style="text-align: center;"><b>"I Can..."</b></p> <ul style="list-style-type: none"> <li>-follow a laboratory procedure and work collaboratively within a group using appropriate scientific tools.</li> <li>-work individually, with a partner, and as a team to test a scientific concept, change a variable, and record the experimental outcome.</li> <li>- use the engineering design cycle to develop a solution with a predictable outcome.</li> <li>- cite specific text or online resource to support a proposed design solution.</li> </ul>	<p style="text-align: center;"><u>Curriculum Units:</u></p> <ul style="list-style-type: none"> <li>• Team Building</li> <li>• Lab Safety</li> <li>• My Science Classroom: Scale Diagrams</li> <li>• Laboratory Procedures and Equipment</li> <li>• Computer Technology</li> <li>• Introduction to Science and Engineering               <ul style="list-style-type: none"> <li>• Inquiry Design Cycle</li> </ul> </li> </ul> <p style="text-align: center;"><u>Discovery Education:</u></p> <ul style="list-style-type: none"> <li>• <a href="http://www.discoveryeducation.com">www.discoveryeducation.com</a></li> </ul>	<ul style="list-style-type: none"> <li>Classify</li> <li>Communicate</li> <li>Compare</li> <li>Conclude</li> <li>Data</li> <li>Design Cycle</li> <li>Engineer</li> <li>Evidence</li> <li>Infer</li> <li>Interpret</li> <li>Investigate</li> <li>Justify</li> <li>Measure</li> <li>Observe</li> <li>Organize</li> <li>Predict / Hypothesis</li> <li>Question</li> <li>Record</li> <li>Relate</li> <li>Science</li> <li>Variable</li> </ul>

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<p><b>PHYSICAL SCIENCE</b></p> <p><b>Motion is described in relation to a reference point. (8.PS.2a)</b></p> <p><b>Forces have magnitude and direction (8.PS.2b)</b></p> <p>*Topics within these content statements will be assessed on <b>both</b> Part I: Performance-Based Assessment and Part 2: End-Of-Year Assessment of Ohio's Next Generation Assessments for Science.</p>	<p>Weeks 4-6</p>	<p><b>"I Can..."</b></p> <ul style="list-style-type: none"> <li>-demonstrate how forces can oppose the motion of an object.</li> <li>- describe a force by its magnitude and direction.</li> <li>- construct a force(free-body) diagram.</li> <li>-describe motion as compared to a reference point.</li> <li>- describe how net force affects an object's direction and/or speed.</li> <li>- demonstrate how net force is related to Newton's 1st Law of Motion.</li> <li>- apply knowledge about forces to solve a problem by designing a solution.</li> <li>- describe motion in relation to reference points</li> </ul>	<p><u>Curriculum Units:</u></p> <ul style="list-style-type: none"> <li>• It's All Relative</li> <li>• May the Force Be with You</li> </ul> <p><a href="#">Frame of Reference Video</a></p> <p><u>Science Textbook:</u> <u>Holt Series</u></p> <p><u>On-line Simulations:</u></p> <ul style="list-style-type: none"> <li>• <a href="#">Force and Fan Carts Gizmo</a></li> <li>• <a href="http://phet.colorado.edu/en/simulation/gravity-force-lab">http://phet.colorado.edu/en/simulation/gravity-force-lab</a></li> <li>• <a href="http://phet.colorado.edu/en/simulation/forces-1d">http://phet.colorado.edu/en/simulation/forces-1d</a></li> </ul> <p><u>Discovery Education:</u></p> <ul style="list-style-type: none"> <li>• <a href="http://www.discoveryeducation.com">www.discoveryeducation.com</a></li> </ul> <p><u>Ohio Department of Education - Science:</u> <a href="http://education.ohio.gov/Topics/Ohio-s-New-Learning-Standards/Science">http://education.ohio.gov/Topics/Ohio-s-New-Learning-Standards/Science</a></p> <p><a href="#">AIR Practice Site</a></p>	<p>Air Resistance Balanced Forces Compression</p> <p>Drag (Fluid Friction) Force Diagram Free-Body Diagram Friction</p> <p>Gravity Inertia Kinetic (sliding) Friction Magnitude (strength) Mass Motion Net Force Newton's 1st Law of Motion Normal Force Position Reference Point Speed Stationary Tension Unbalanced Forces Weight</p>
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<p><b>EARTH AND SPACE SCIENCE</b></p> <p><b>The composition and properties of Earth's interior are identified by the behavior of seismic waves. (8.ESS.1)</b></p> <p>*Topics within these content statements will be assessed on <b>both</b> Part I: Performance-Based Assessment and Part 2: End-Of-Year Assessment of Ohio's Next Generation Assessments for Science. of density. (planetary differentiation)</p>	<p>Weeks 7-9</p>	<p><b>"ICan."</b></p> <ul style="list-style-type: none"> <li>- construct a model of how a planet's interior became organized into layers from cosmic debris.</li> <li>- explain the effect of gravity on newly forming planets.</li> <li>- design a method to determine the relative density of a material.</li> <li>- present to the class, using a model to explain that as planets form, the materials which are most dense move to the core, and materials become part of the planet in decreasing degrees</li> </ul>	<p><u>Curriculum Units</u></p> <ul style="list-style-type: none"> <li>• Planet X</li> </ul> <p><u>Science Textbook:</u> <u>Holt Series</u></p> <p><u>On-line Simulations:</u></p> <ul style="list-style-type: none"> <li>• <a href="http://www.ExploreLearning.com">http://www.ExploreLearning.com</a> GIZMO "Conduction and Convection"</li> </ul> <p><u>Discovery Education:</u></p> <ul style="list-style-type: none"> <li>• How the Inner Structure of Planet Earth Affects Plate Tectonics (A segment of: Continents Adrift: An Introduction to Continental Drift and Plate Tectonics <a href="http://player.discoveryeducation.com/index.cfm?guidAssetId=C85F4EAF-54BC-4A01-BF11-C2D7608708C1&amp;blnFromSearch=1&amp;productcode=US">http://player.discoveryeducation.com/index.cfm?guidAssetId=C85F4EAF-54BC-4A01-BF11-C2D7608708C1&amp;blnFromSearch=1&amp;productcode=US</a></li> </ul> <p><a href="#">AIR Practice Site</a></p> <p>Steve Spangler Science <a href="http://www.stevespanglerscience.com/experiment/colorful-convection-currents">http://www.stevespanglerscience.com/experiment/colorful-convection-currents</a> (this site has a video of the demonstration as well)</p> <p>Convection Currents <a href="http://volcano.oregonstate.edu/vwdocs/vwlessons/lessons/Earths_layers/Earths_layers7.html">http://volcano.oregonstate.edu/vwdocs/vwlessons/lessons/Earths_layers/Earths_layers7.html</a></p> <p>You Tube - Convection Currents <a href="http://www.youtube.com/watch?v=7xWWowXtuvA">http://www.youtube.com/watch?v=7xWWowXtuvA</a></p> <p><u>Ohio Department of Education - Science:</u> <a href="http://education.ohio.gov/Topics/Ohio-s-New-Learning-Standards/Science">http://education.ohio.gov/Topics/Ohio-s-New-Learning-Standards/Science</a></p>	<p>Crust Density Displacement Float Inner Core Lithosphere Mantle Mass</p> <p>Outer Core Planetary Differentiation Sink Volume</p>
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